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Please find below and/or attached an Office communication concerning this application or proceeding.

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte JOHN MILLER, MARTIN DIECK, MARIA ABOYTES
and RYAN K. PIERCE

Appeal 2009-001148
Application 10/692,424
Technology Center 3700

Decided: ¹May 28, 2009

Before: WILLIAM F. PATE III, JENNIFER D. BAHR
and STEVEN D.A. McCARTHY, *Administrative Patent Judges.*

McCARTHY, *Administrative Patent Judge.*

DECISION ON APPEAL

¹ The two month time period for filing an appeal or commencing a civil action, as recited in 37 C.F.R. § 1.304 (2008), begins to run from the Decided Date shown on this page of the decision. The time period does not run from the Mail Date (paper delivery) or the Notification Date (electronic delivery).

STATEMENT OF THE CASE

1 The Appellants appeal under 35 U.S.C. § 134 (2002) from the final
2 rejection of claims 1, 2, 6 and 7 under 35 U.S.C. § 103(a) (2002) as being
3 unpatentable over Steen (US 6,213,995 B1, issued Apr. 10, 2001) and
4 Mische (US 5,052,105, issued Oct. 1, 1991); and the final rejection of claims
5 1-9 under § 103(a) as being unpatentable over Samson (US 6,186,978 B1,
6 issued Feb. 13, 2001) and Mische. We have jurisdiction under 35 U.S.C
7 § 6(b) (2002).

8 Claim 1 is the sole independent claim on appeal:

- 9
10 1. A catheter comprising:
11 a catheter body comprising at least one
12 polymeric tubular member; and
13 a braided tubular structure comprising a
14 plurality of component tubular members each
15 having longitudinal lumens, woven radially in and
16 out to form said braided tubular structure, wherein
17 said braided tubular structure is embedded in a
18 wall of the polymeric tubular member.
19

20 We sustain the rejection of claims 1, 2, 6 and 7 under § 103(a) as
21 being unpatentable over Steen and Mische. We do not sustain the rejection
22 of claims 1-9 under § 103(a) as being unpatentable over Samson and
23 Mische.
24

ISSUES

25
26 The Appellants argue claims 1, 2, 6 and 7 as a group for purposes of
27 the rejection of the claims as unpatentable over Steen and Mische. (App. Br.
28 10-14). The Examiner finds that Steen discloses a catheter body including a

1 braided tubular structure provided with wires for transmission of signals.
2 (Ans. 3). The Examiner reasons that it would have been obvious “to modify
3 the braided tubular structure in Steen by substituting hollow tubular
4 members for the conductive wires as suggested by Mische” (*Id.*) The
5 Appellants contend that the Examiner mischaracterizes and overstates the
6 teachings of Mische. (App. Br. 11). In the Appellants’ view, Steen and
7 Mische not only fail to suggest the subject matter of claim 1 but Mische
8 actually teaches away from that subject matter. (App. Br. 13-14).

9 The Examiner finds that Samson discloses a catheter body including a
10 braided tubular structure provided with metal wire elements capable of
11 conducting electricity. (Ans. 4 and 9). The Examiner reasons that it would
12 have been obvious “to modify the braided tubular structure in Steen by
13 substituting hollow tubular members for the solid wires as suggested by
14 Mische” (Ans. 4). The Appellants contend that the Examiner has
15 failed to articulate reasoning sufficient to support the conclusion that the
16 proposed substitution would have been obvious. The Appellants also
17 contend that Mische teaches away from the claimed subject matter. (App.
18 Br. 18).

19 Therefore, this appeal turns on two issues:

20 Have the Appellants shown that the Examiner failed to
21 articulate reasoning with some rational underpinning sufficient
22 to support the conclusion that Steen and Mische would have
23 suggested a catheter including a braided tubular structure
24 comprising a plurality of tubular members woven radially in
25 and out to form the braided tubular structure?

1 Have the Appellants shown that the Examiner failed to
2 articulate reasoning with some rational underpinning sufficient
3 to support the conclusion that Samson and Mische would have
4 suggested a catheter including a braided tubular structure
5 comprising a plurality of tubular members woven radially in
6 and out to form the braided tubular structure?
7

8 FINDINGS OF FACT

9 The record supports the following findings of fact (“FF”) by a
10 preponderance of the evidence.

11 1. Steen discloses a polymeric tubing including a wall defining a
12 lumen. (Steen, col. 3, ll. 14-17 and 43-45).

13 2. Steen discloses providing a plurality of braid elements forming
14 a braid within the wall of the tubing. (Steen, col. 3, ll. 19-20).

15 3. Steen’s braid elements include signal transmitting elements and
16 structural elements. (Steen, col. 3, ll. 20-23). The signal transmitting
17 elements may be used as sensor conductors. (Steen, col. 2, ll. 32-34).

18 4. Half of Steen’s braid elements run helically parallel to each
19 other. Another half of Steen’s braid elements run in an opposite direction
20 helically parallel to each other. The two halves of Steen’s braid elements
21 criss-cross each other so that the braid elements are woven together. (Steen,
22 col. 3, ll. 23-28). In other words, Steen’s signal transmitting elements are
23 woven radially in and out with the structural elements to form the braid.

24 5. Mische discloses a micro-cable interconnect which may be used
25 to connect to a connector of a sensor located at a distal end of a catheter.
26 (Mische, col. 2, ll. 59-62).

1 6. Mische's micro-cable interconnect is adapted for insertion
2 within the lumen of the catheter. (Mische, col. 2, l. 67 – col. 3, l. 2).

3 7. Mische's micro-cable interconnect includes an insulative
4 flexible synthetic resin coating containing precisely spaced parallel electrical
5 or optical conductors. (Mische, col. 2, ll. 37-40 and 3, ll. 40-41).

6 8. Mische discloses that, "the conductors *14*, instead of being
7 electrical or optical conductors as just described, may be micro-tubes *19*."
8 (Mische, col. 3, ll. 15-21). In such an embodiment, "the micro-cable
9 interconnect would provide operative connection for transmission of
10 pressure control to in-body sensors, for injecting bio-compatible fluids, or
11 for sensing in-body pressure conditions." (*Id.*)

12 9. Samson discloses a catheter assembly having an open lumen
13 along its entire length and an annular lumen which forms a closed system
14 with a balloon or membrane. (Samson, col. 6, ll. 50-54 and 60-62).

15 10. Both an inner tube assembly and an outer tube assembly of
16 Samson's catheter assembly include braid confined annularly between
17 interior and exterior coverings. (Samson, col. 7, ll. 41-47 and Figs. 3-4).

18 11. Samson does not disclose conducting any signals through any
19 strand of the braid.

21 PRINCIPLES OF LAW

22 A claim under examination is given its broadest reasonable
23 interpretation consistent with the underlying specification. *In re American*
24 *Acad. of Science Tech. Ctr.*, 367 F.3d 1359, 1364 (Fed. Cir. 2004). In the
25 absence of an express definition of a claim term in the specification, the
26 claim term is given its broadest reasonable meaning in its ordinary usage as

1 the term would be understood by one of ordinary skill in the art. *In re ICON*
2 *Health & Fitness, Inc.*, 496 F.3d 1374, 1379 (Fed. Cir. 2007); *In re Morris*,
3 127 F.3d 1048, 1054 (Fed. Cir. 1997). Limitations not explicit or inherent in
4 the language of a claim cannot be imported from the specification. *E-Pass*
5 *Techs., Inc. v. 3Com Corp.*, 343 F.3d 1364, 1369 (Fed. Cir. 2003).

6 A claim is unpatentable for obviousness under 35 U.S.C. § 103(a) if
7 “the differences between the subject matter sought to be patented and the
8 prior art are such that the subject matter as a whole would have been obvious
9 at the time the invention was made to a person having ordinary skill in the
10 art to which said subject matter pertains.” In *Graham v. John Deere Co.*,
11 383 U.S. 1 (1966), the Supreme Court set out factors to be considered in
12 determining whether claimed subject matter would have been obvious:

13
14 Under § 103, the scope and content of the prior art
15 are to be determined; differences between the prior
16 art and the claims at issue are to be ascertained;
17 and the level of ordinary skill in the pertinent art
18 resolved. Against this background the obviousness
19 or nonobviousness of the subject matter is
20 determined.
21

22 *Id.*, 383 U.S. at 17.

23 The Appellants do not rely on any objective evidence of patentability
24 in this appeal. (*See App. Br. 22*). Therefore, the Appellants’ burden in this
25 appeal is to show that the Examiner has identified insufficient evidence to
26 support a conclusion of prima facie obviousness. *In re Kahn*, 441 F.3d 977,
27 985-86 (Fed. Cir. 2006) (citing *In re Rouffet*, 149 F.3d 1350, 1355 (Fed. Cir.
28 1998)). “When a patent claims a structure already known in the prior art that
29 is altered by the mere substitution of one element for another known in the

1 field, the combination must do more than yield a predictable result.” *KSR*
2 *Int’l Co. v. Teleflex, Inc.*, 550 U.S. 398, 417 (2007). That said, “rejections
3 on obviousness grounds cannot be sustained by mere conclusory statements;
4 instead, there must be some articulated reasoning with some rational
5 underpinning to support the legal conclusion of obviousness.” *Kahn*, 441
6 F.3d at 988.

7 As a general rule, a reference which “teaches away” from the subject
8 matter of a claim does not support a prima facie case that the subject matter
9 would have been obvious. A reference teaches away from the subject matter
10 of a claim only if “a person of ordinary skill, upon reading the reference,
11 would be discouraged from following the path set out in the reference, or
12 would be led in a direction divergent from the path that was taken by the
13 applicant.” *In re Gurley*, 27 F.3d 551, 553 (Fed. Cir. 1994).

14 15 ANALYSIS

16 Steen discloses a catheter comprising a catheter body. (FF 1). The
17 catheter body comprises at least one polymeric tubular member (FF 1) and a
18 braided tubular structure (FF 2). The braided tubular structure comprises a
19 plurality of signal transmitting elements woven radially in and out to form
20 said braided tubular structure. (FF 3 and 4). The braided tubular structure is
21 embedded in a wall of the polymeric tubular member. (*See* FF 3). As the
22 Examiner correctly finds (*see* Ans. 3), Steen does not disclose that any of the
23 signal transmitting elements are component tubular elements having
24 longitudinal lumens.

25 Steen and Mische each disclose or suggest catheter assemblies which
26 include signal transmitting elements extending the length of the catheters to

1 in-body sensors located at the distal ends of the catheters. (*See* FF 1, 3 and
2 5). Mische also discloses providing micro-tubes arranged in parallel with
3 electrical or optical signal transmission elements. (FF 8). Mische discloses
4 that the micro-tubes provide operative connection for transmission of
5 pressure control to in-body sensors and for sensing in-body pressure
6 conditions. (*Id.*) In other words, Mische's micro-tubes are signal
7 transmitting elements--they conduct signals characterized by modulation of
8 a fluid pressure rather than by modulation of an electrical voltage or a light
9 intensity. In this sense, Mische reveals micro-tubes to be interchangeable
10 with electrical or optical transmitters for transmitting certain types of
11 information relating to sensing in-body conditions encountered at the distal
12 end of a catheter.

13 The Appellants do not appear to contend that it would have been
14 beyond the level of ordinary skill in the art to embed micro-tubes rather than
15 electrical or optical conductors in the wall of a polymeric tubular member.
16 Neither do the Appellants assert that embedding micro-tubes rather than
17 electrical or optical conductors in the wall of a polymeric tubular member
18 would have produced results which one of ordinary skill in the art could not
19 have predicted. The Examiner correctly concludes (*see* Ans. 3 and 7) that
20 the simple substitution of micro-tubes as taught by Mische for two or more
21 signal transmitting elements in the braid disclosed by Steen would have been
22 obvious to one of ordinary skill in the art.

23 Mische does not teach away from such a combination as argued by the
24 Appellants. (*See* App. Br. 13-14). Mische discloses embedding micro-tubes
25 in parallel with electrical or optical signal transmitting elements in a micro-
26 cable interconnect adapted for insertion within the lumen of a catheter (FF 6-

1 8) and does not mention embedding micro-tubes in the wall of a polymeric
2 catheter tube. On the other hand, Mische does not disparage embedding
3 micro-tubes in the wall of a polymeric catheter tube. Neither does Mische
4 suggest any reason why micro-tubes embedded in the wall of a catheter tube
5 would not conduct pressure signals as well as micro-tubes embedded in a
6 micro-cable interconnect inserted in the lumen of the catheter would conduct
7 such signals. Mische's silence concerning embedding micro-tubes in the
8 wall of a polymeric catheter tube, even when considered in the context of
9 Mische's disclosure as a whole, is not a teaching away from substituting
10 micro-tubes for two or more signal transmitting elements in the braid
11 disclosed by Steen. *Cf. DyStar Textilfarben GmbH v. C.H. Patrick Co.*, 464
12 F.3d 1356, 1364 (Fed. Cir. 2006) ("We will not read into a reference a
13 teaching away from a process where no such language exists.").

14 Samson discloses a catheter including an inner tube assembly and an
15 outer tube assembly. (FF 9-10). Both the inner tube assembly and the outer
16 tube assembly include braid confined annularly between interior and exterior
17 coverings comprising a catheter body. (FF 10). Unlike Steen's braid,
18 Samson's braid does not include signal transmitting elements. (FF 11).
19 Samson fails to teach any element for which a simple substitution of
20 Mische's micro-tubes could have been made.

21 The reasoning articulated by the Examiner for modifying Steen's
22 braid to include component tubular members presupposes the substitution of
23 micro-tubes for the wires of Samson's braid in the manner similar to that in
24 which the Examiner proposes substituting micro-tubes for Steen's signal
25 transmission elements. (*See* Ans. 4 and 8-10). The reasoning lacks rational
26 underpinning in the teachings of Samson and Mische. The mere fact that the

wires which make up Samson's braid might conduct electricity does not imply, as the Examiner appears to conclude (*see* Ans. 9), that one of ordinary skill in the art would have viewed Samson's wires as signal transmission elements or micro-tubes as interchangeable with the wires. Since Samson does not disclose signal transmission elements incorporated into the braid (*see* FF 11), the Examiner errs in concluding (*see* Ans. 4-5) that one of ordinary skill in the art would have recognized the substitution or addition of micro-tubes into Samson's braid as providing "*another* means to transmit something from one end of the catheter to another which would expand the usefulness of the product . . ." (*id.* (emphasis added)).

CONCLUSIONS

The Appellants have not shown that the Examiner failed to articulate reasoning with some rational underpinning sufficient to support the conclusion that Steen and Mische would have suggested a catheter including a braided tubular structure comprising a plurality of tubular members woven radially in and out to form said braided tubular structure. Therefore, the Appellants have not shown that the Examiner erred in rejecting claims 1, 2, 6 and 7 under § 103(a) as being unpatentable over Steen and Mische.

The Appellants have shown that the Examiner failed to articulate reasoning with some rational underpinning sufficient to support the conclusion that Samson and Mische would have suggested a catheter including a braided tubular structure comprising a plurality of tubular members woven radially in and out to form said braided tubular structure. Therefore, the Appellants have shown that the Examiner erred in rejecting claims 1-9 under § 103(a) as being unpatentable over Samson and Mische.

DECISION

The Examiner's rejection of claims 1, 2, 6 and 7 is AFFIRMED.
The Examiner's rejection of claims 3-5, 8 and 9 is REVERSED.
No time period for taking any subsequent action in connection with
this appeal may be extended under 37 C.F.R. § 1.136(a). *See* 37 C.F.R.
§ 1.136(a)(1)(iv) (2007).

AFFIRMED-IN-PART

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